CITY OF RIGGINS (PWS 2250053)
SOURCE WATER ASSESSMENT FINAL REPORT

April 2, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for City of Riggins, Idaho,* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The City of Riggins drinking water system consists of two ground water wells. Well #1SE is located within 27 feet of Well #2NW. The wells are situated slightly northwest of the confluence of the Little Salmon River and the Main Salmon River between Highway 95 and the rivers. Well #1SE is the older well, drilled in 1952 to a depth of 96 feet bgs. It provides approximately 324 gallons per minute (gpm) of water to the drinking water system. Well #2NW was drilled in 1976 to a depth of 118 feet bgs. It provides approximately 440 gpm of water to the system. Water from the wells is stored in a 100,000-gallon reservoir that lies to the west of the wells on a bench above the City of Riggins. It was constructed in 1965. The City of Riggins drinking water system currently serves 430 people through 220 connections (Figure 1).

Final susceptibility scores are derived from equally weighing system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential Contaminants/Land Uses are divided into four categories, inorganic contaminants (IOCs, e.g. nitrates, arsenic), volatile organic contaminants (VOCs, e.g. petroleum products), synthetic organic contaminants (SOCs, e.g. pesticides), and microbial contaminants (e.g. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of total susceptibility, Well #1SE rates moderate for all potential contaminant categories and Well #2NW rates automatically high for VOCs, SOCs, and microbials and rates moderate for IOCs. According to the 2001 sanitary survey, antifreeze and a generator used for backup power are located in the wellhouse of Well #2NW, resulting in an automatic high susceptibility for VOCs and SOCs. If these items are removed from the wellhouse, the scores for VOCs and SOCs will be reduced to a moderate susceptibility. Additionally, total coliform bacteria were detected repeatedly in May 1997 at Well #2NW, resulting in an automatic high susceptibility score for microbial contaminants for that well.

No VOCs or SOCs have ever been detected in the wells. Trace concentrations of the IOCs antimony, fluoride, nitrate, and sodium have been detected in tested water, but at concentrations significantly below maximum contamination levels (MCLs) as set by the EPA. Alpha and beta particles (radionuclides) have also been detected in the distribution system at levels below the MCLs. Total coliform bacteria have been detected repeatedly in the distribution system in February and May 1997 and in Well #2NW in May 1997. However, no coliform bacteria have been detected in the system since that time.

Because of the proximity of the Little Salmon and Main Salmon Rivers to the wellheads, a Microscopic Particulate Analysis (MPA) was performed to determine if the rivers influence the well water. The first test was performed during a high flow period and the second test was performed during a low flow period. The results of these tests showed that the rivers influence the wells. Therefore, the well water is considered ground water under direct influence (GWUDI) and requires more microbial testing as well as more frequent disinfection treatment.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the City of Riggins, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Actions should be taken to keep a 50-foot radius perimeter clear of all potential contaminants from around the wellheads. The chemical items and the generator that are stored in the wellhouse of Well #2NW should be removed to avoid contamination from spills or leaks associated with these items. Any contaminant spills within the delineation should be carefully monitored and dealt with. Due to the MPA test results, showing that the wells are influenced by the rivers, the City of Riggins may need to implement a regular treatment program. As much of the designated protection areas are outside the direct jurisdiction of the City of Riggins drinking water system, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the wells should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus on any drinking water protection plan as the delineation contains some urban and residential land uses. Public education topics could include proper lawn care practices, household hazardous waste disposal methods, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As there are transportation corridors through the delineation, the Idaho Department of Transportation should be involved in protection activities.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific bet management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR CITY OF RIGGINS, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the EPA to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The local community, based on its own needs and limitations, should determine the decision as to the amount and types of information necessary to develop a drinking water protection program. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The City of Riggins drinking water system consists of two ground water wells. Well #1SE is located within 27 feet of Well #2NW. The wells are situated slightly northwest of the confluence of the Little Salmon and the Main Salmon River between Highway 95 and the rivers. Well #1SE is the oldest well, drilled in 1952 to a depth of 96 feet bgs. It provides approximately 324 gpm of water to the drinking water system. Well #2NW was drilled in 1976 to a depth of 118 feet bgs. It provides approximately 440 gpm of water to the system. Water from the wells is stored in a 100,000-gallon reservoir that lies to the west of the wells on a bench above the City of Riggins. It was constructed in 1965. The City of Riggins drinking water system currently serves 430 people through 220 connections (Figure 1).

In terms of total susceptibility, Well #1SE rates moderate for all potential contaminant categories and Well #2NW rates automatically high for VOCs, SOCs, and microbials and rates moderate for IOCs. According to the 2001 sanitary survey, antifreeze and a generator used for backup power are located in the wellhouse of Well #2NW, resulting in an automatic high susceptibility for VOCs and SOCs. If these items are removed from the wellhouse, the scores for VOCs and SOCs will be reduced to a moderate susceptibility. Additionally, total coliform bacteria were detected repeatedly in May 1997 at Well #2NW, resulting in an automatic high susceptibility score for microbial contaminants for that well.

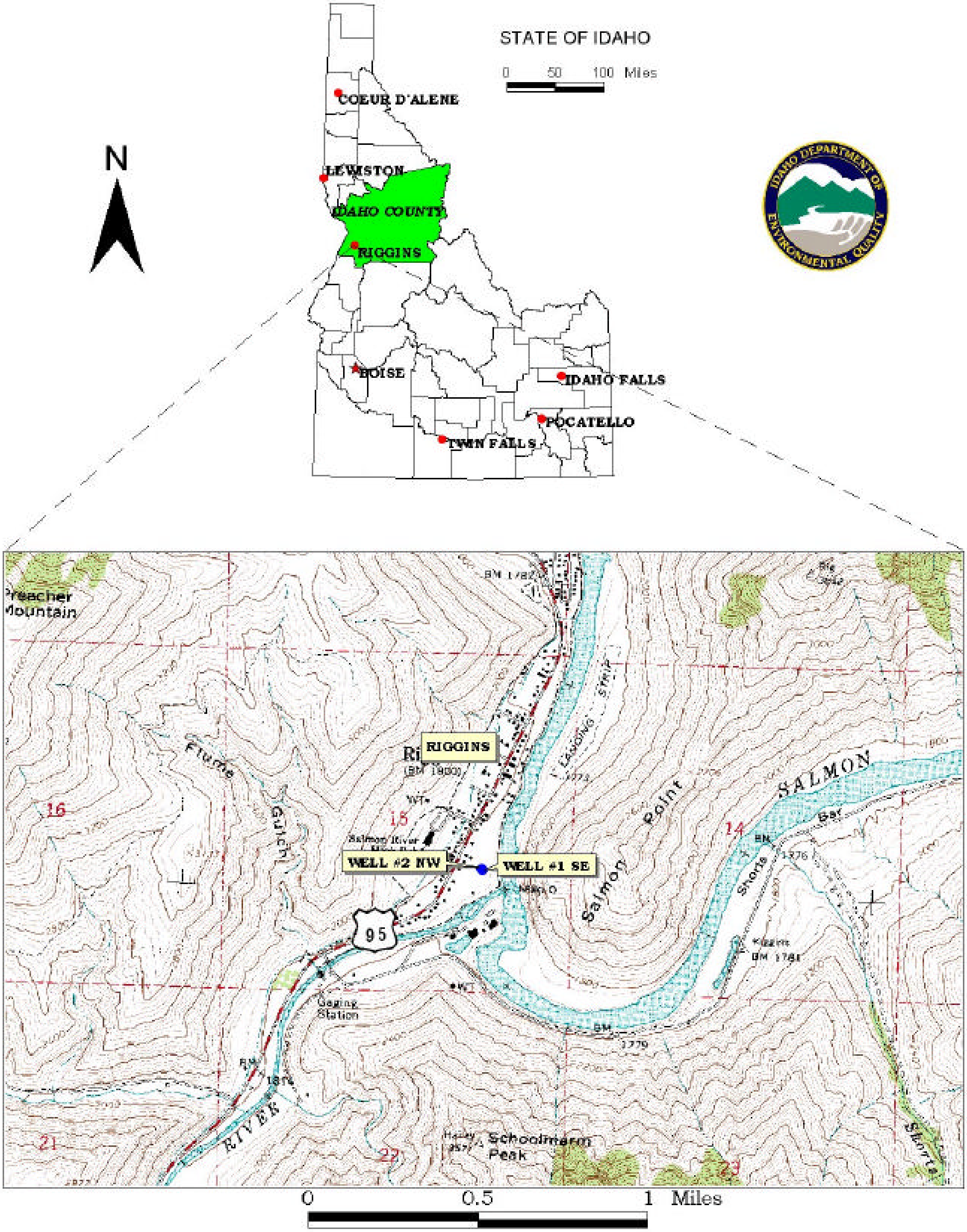
No VOCs or SOCs have ever been detected in the wells. Trace concentrations of the IOCs antimony, fluoride, nitrate, and sodium have been detected in tested water, but at concentrations significantly below MCLs as set by the EPA. Alpha and beta particles (radionuclides) have also been detected in the distribution system at levels below the MCLs. Total coliform bacteria have been detected repeatedly in the distribution system in February and May 1997 and in Well #2NW in May 1997. However, no coliform bacteria have been detected in the system since that time.

Because of the proximity of the Little Salmon and Main Salmon Rivers to the wellhead, a Microscopic Particulate Analysis (MPA) was performed to determine if the rivers influence the well water. The first test was performed during a high flow period and the second test was performed during a low flow period. The results of these tests showed that the rivers influenced the wells. Therefore, the well water is considered ground water under direct influence (GWUDI) and requires more microbial testing as well as more frequent disinfection treatment.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ contracted with the University of Idaho to perform the delineations using a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water in the vicinity of the City of Riggins wells. The computer model used site specific data, assimilated by the University of Idaho from a variety of sources including operator input, local area well logs, and hydrogeologic reports (detailed below).

FIGURE 1. Geographic Location of the City of Riggins



The conceptual hydrogeologic model for the Riggins source wells is based on interpretation of available well logs. The source well log for Riggins Well #2NW indicates water is derived from boulders and sand overlying a "shale"; also referred to as a clay layer. Based on the geologic map of the Grangeville quadrangle at a scale of 1:250,000 (Gaston and Bennett, 1979), the wells are in alluvium that overlay Riggins Group Metamorphics; therefore the "shale" is probably Riggins Group schist.

The ground elevation is approximately 1800 feet above mean sea level (msl) at the two Riggins wells. Discharge from Well #1 SE is 324 gpm, and for Well #2 NW is 355 gpm. Little information is known about the hydrogeology of the area. A well log is available for Well 2 NW only. The geologic setting is assumed to be similar for Well 1 SE because they are only about 50 ft apart.

The two sources are located in Quaternary alluvial sediments resting on Riggins Groups schists. Riggins is at the confluence of the Little Salmon and Salmon Rivers. The roughly north-south line connecting the Little Salmon and Salmon Rivers is paralleled by a N-S contact between the metamorphics that underlie the rivers, and Columbia River Basalts. No hydraulic data is available about this contact.

The Little Salmon and Salmon Rivers are assumed to be constant head boundaries at the scale of this model, because the source wells and test point wells are all in quaternary sediments resting on "slate". Another possible interpretation is that the river may be gaining or losing in this reach, although no data are available to test these interpretations.

No recharge data is available for the Riggins area. Wyatt-Jaykim used a recharge value of 1 in/yr for the Lewiston Basin and 2 in/yr for higher elevations in the immediate vicinity of Lewiston (Wyatt-Jaykim, 1994).

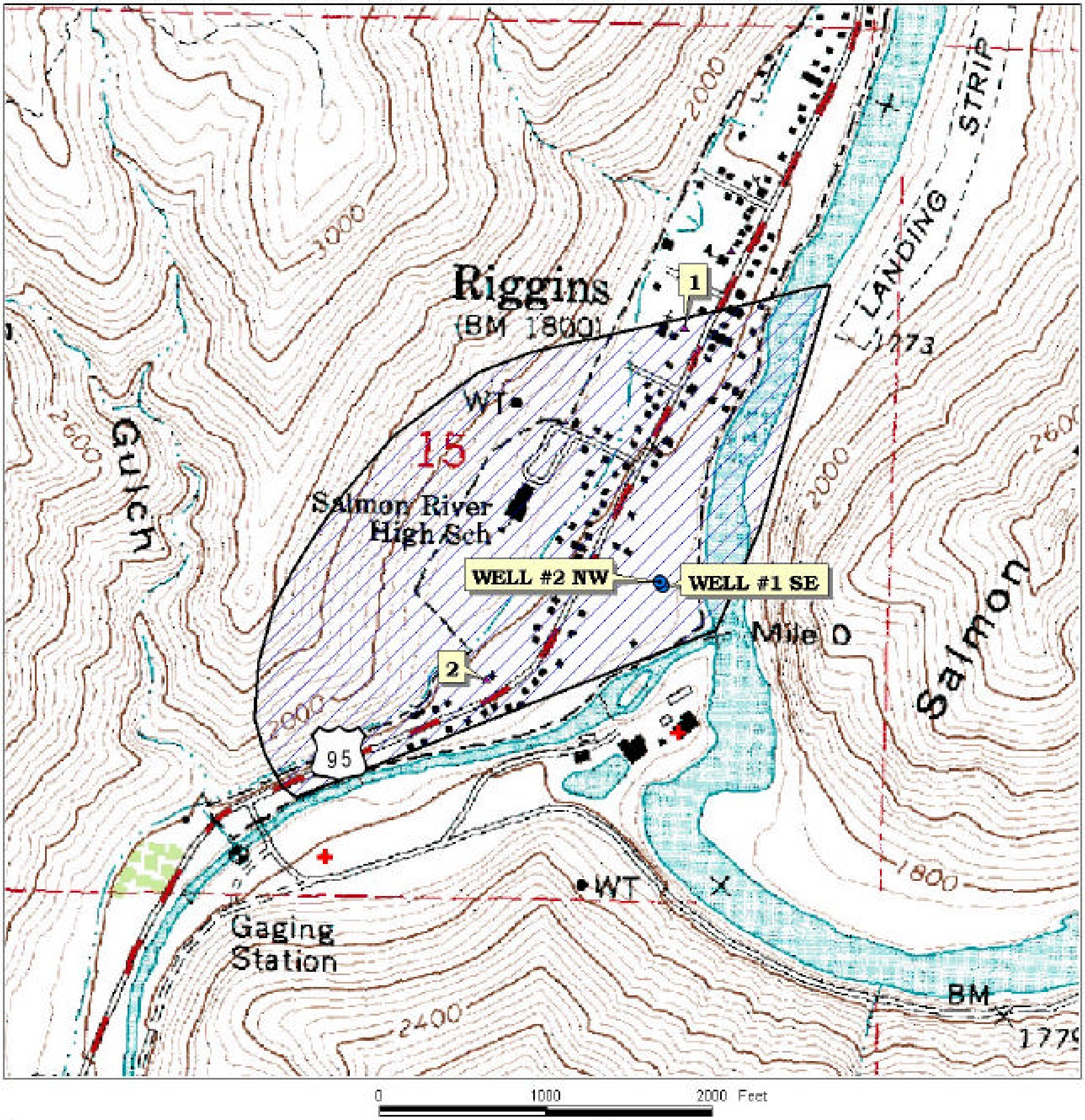
The amount of areal recharge used in the model for Riggins is 2 in/yr, which is the same as was used to model Slate Creek, just downstream.

The WhAEM model is used to delineate the capture zones. Nearby wells were used for test points in the WhAEM simulations. Information on test points was obtained from a search of the Idaho Department of Water Resources database available on the internet. The locations of the test points are limited to information supplied on well logs, typically the quarter-quarter section (0.25 mile^2). Therefore, the accuracy of the test point elevation and the static water elevation is dependent upon the accuracy of the driller's log and the topographic relief in the quarter-quarter section.

The capture zones delineated herein are based on limited data and must be taken as best estimates. If more data become available in the future these delineations should be adjusted based on additional modeling incorporating the new data. The WhAEM model is used to delineate the capture zones.

Because the wells of the City of Riggins are located within 27 feet of each other, they share the same delineation. That delineated area can best be described as a polygon-shaped area that extends from the wells along the Main and Little Salmon Rivers, encompassing Highway 95 south of Riggins High School (Figure 2). It only includes a 3-year TOT zone due to the natural boundaries around the wells (the rivers). The actual data used by the University of Idaho in determining the source water assessment delineation area is available from DEQ upon request.

FIGURE 2. City of Riggins Delineation Map and Potential Contaminant Source Locations



PWS# 2250053
WELL #1 SE
WELL #2 NW

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area and the surrounding area of the City of Riggins wells is predominantly woodland.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in October and November 2002. The first phase involved identifying and documenting potential contaminant sources within the City of Riggins source water assessment area (Figure 2) through the use of field surveys, computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the area.

The delineated source water assessment area of the City of Riggins wells contain Highway 95, the Main Salmon River and two gas stations. All of these potential sources could contribute leachable contaminants to the aquifer in the event of an accidental spill, release, or flood. Additionally, the 1995 Ground Water Under Direct Influence (GWUDI) field survey indicates that a trailer park and a sewage treatment system are within 500 feet of the wellheads. These sources can also add contaminants to the aquifer. Table 1 below lists the potential contaminants for the wells.

Table 1. City of Riggins, Wells, Potential Contaminant Inventory and Land Use

Site	Description of Source	TOT[1] Zone	Source of Information	Potential Contaminants[2]
1	Gas Station, UST Site-Closed	0-3 YR	Database Search	IOC, VOC, SOC, Microbials
2	Gas Station, UST-Open	0-3 YR	Database Search	IOC, VOC, SOC, Microbials
	Main Salmon River	0-3 YR	GIS Map	IOC, VOC, SOC, Microbials
	Highway 95	0-3 YR	GIS Map	IOC, VOC, SOC, Microbials
	Sewage Treatment System	0-3 YR	GWUDI Survey	IOC, Microbials
	Trailer Park	0-3 YR	GWUDI Survey	IOC, VOC, SOC, Microbials

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

Each well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix A contains the susceptibility analysis worksheets for the system. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity rated moderate for both of the Riggins wells. Area soils are poorly to moderately drained, reducing the downward migration of contaminants to the aquifer. The well log for Well #1SE was not available preventing a determination of the composition of the vadose zone, the location of first ground water, and the presence of any fine-grained zones that could form an aquitard above the producing zone. The well log for Well #2NW indicates that the composition of the vadose zone consists of mostly boulders and sand. The well log does not provide information concerning the location of first ground water.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced. A sanitary survey was conducted in 2001 for the system.

Well #1SE is the oldest of the Riggins wells and was drilled in 1952 to a depth of 96 feet bgs. It has a 12-inch casing and the well casing is sealed down to 20 feet bgs. The well log for this well is unavailable, limiting the amount of construction information concerning the casing depth and thickness, the location of low permeability units, the highest production zone, and the static water level.

Well #2NW was drilled in 1976 to a depth of 118 feet bgs. It has a 10-inch casing that extends to a depth of 118 feet bgs and the well casing is sealed to 50 feet bgs. The casing itself ends in a layer of clay but the annular seal terminates in sand. The well log did not provide information concerning the thickness of the casing, the highest production zone, or the static water level.

Both City of Riggins wells have a moderately susceptible system construction. According to the 2001 sanitary survey, the wellhead and surface seals for both wells are maintained to standards and the wells are properly vented. The wells are located outside of the 100-year flood plain and are properly protected from surface flooding. Not enough information was provided for either of the wells to determine the thickness of the casings, the highest production zones, the static water level, or the location of low permeability units.

Though the wells may have been in compliance with standards when they were completed, current PWS well construction standards are more stringent. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. These standards include provisions for well screens, pumping tests, and casing thicknesses to name a few. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. In this case, there was insufficient information available to determine if the wells meet all the criteria outlined in the IDWR Well Construction Standards.

Potential Contaminant Source and Land Use

The wells rated moderate for IOCs (e.g. nitrates, arsenic), VOCs (e.g. petroleum products, chlorinated solvents) and SOCs (e.g. pesticides), and low for microbial contaminants (e.g. bacteria). All of the potential contaminant sources in the delineation are located in the 3-year TOT zone, contributing to the overall land use score. However, the predominant woodland land use of the area makes the wells less susceptible to contamination.

Final Susceptibility Ranking

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. In this case, total coliform bacteria was detected repeatedly in May 1997 at Well #2NW, resulting in an automatic high susceptibility score for microbials. Additionally, if there are contaminant sources located within 50 feet of the source then the wellhead will automatically get a high susceptibility rating. Antifreeze and a generator are located in the wellhouse of Well #2NW, resulting in automatic high susceptibility scores for VOCs and SOCs. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. Well #1SE has moderate susceptibility to all potential contaminant categories and Well #2NW has a high susceptibility to VOCs, SOCs, and microbials and a moderate susceptibility to IOCs.

Table 2. Summary of City of Riggins Susceptibility Evaluation

Well	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1SE	M	M	M	M	L	M	M	M	M	M
Well #2NW	M	M	M	M	L	M	M	H*	H*	H*

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
*** = Automatic high susceptibility due to a repeated detection of microbial contaminants at the wellhead and antifreeze and a gerator located in the wellhouse**

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Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the City of Riggins, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. Actions should be taken to keep a 50-foot radius perimeter clear of all potential contaminants from around the wellheads. The chemical items and the generator that are stored in the wellhouse of Well #2NW should be removed to avoid contamination from spills or leaks associated with these contaminants. Any contaminant spills within the delineation should be carefully monitored and dealt with. Due to the MPA test results, the City of Riggins may need to implement a regular treatment program. As much of the designated protection areas are outside the direct jurisdiction of the City of Riggins drinking water system, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the wells should maintain sanitary standards regarding wellhead protection.

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A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Lewiston Regional DEQ Office (208) 799-4370

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper, mlharper@idahoruralwater.com, Idaho Rural Water Association, at 208-343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

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Appendix A

City of Riggins
Susceptibility Analysis
Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report   Public Water System Name : RIGGINS CITY OF   Well# : WELL #1 S E

Public Water System Number 2250053   12/11/02 8:48:47 AM

1. System Construction		SCORE
Drill Date	1/1/52	
Driller Log Available	NO	
Sanitary Survey (if yes, indicate date of last survey)	YES	2001
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
	Total System Construction Score	4

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	YES	0
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
	Total Hydrologic Score	4

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	5	4	4	4
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8
Sources of Class II or III leacheable contaminants or	YES	4	4	4	
4 Points Maximum		4	4	4	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	12	12	8
Cumulative Potential Contaminant / Land Use Score		12	12	12	8
4. Final Susceptibility Source Score		11	11	11	11
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report   Public Water System Name : RIGGINS CITY OF   Well# : WELL #2 N W

Public Water System Number 2250053   12/11/02 8:49:06 AM

1. System Construction		SCORE
Drill Date	10/22/76	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	2001
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
	Total System Construction Score	4

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	YES	0
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
	Total Hydrologic Score	4

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	5	4	4	4
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8
Sources of Class II or III leacheable contaminants or	YES	4	4	4	
4 Points Maximum		4	4	4	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	12	12	8
Cumulative Potential Contaminant / Land Use Score		12	12	12	8
4. Final Susceptibility Source Score		11	11	11	11
5. Final Well Ranking		Moderate	High	High	High